

CLAIMS

What is claimed is:

1. A method for transforming soybean cells or tissue, comprising:
 - (a) preparing an explant from a soybean seed by:
 - (i) removing a hypocotyl from said soybean seed;
 - (ii) removing one cotyledon along with its adjacent axillary bud, leaving primary leaves attached to a remaining cotyledon; and
 - (iii) removing a portion of a primary leaf from said remaining cotyledon, thereby generating a primary leaf base; and
 - (b) co-cultivating said explant with *Agrobacterium* comprising at least one nucleic acid of interest to be incorporated into a genome of one or more soybean cells.
2. The method of claim 1, further comprising cultivating at least one formed shoot in a medium containing a selection agent.
3. The method of claim 2, wherein said at least one nucleic acid of interest comprises a selectable marker gene.
4. The method of claim 3, wherein said selectable marker gene is a phosphomannose isomerase gene.
5. The method of claim 4, wherein said selection agent is mannose.
6. The method of claim 4, wherein co-cultivation with said *Agrobacterium* is carried out in the presence of mannose.
7. The method of claim 2, further comprising inducing shoot formation from said primary leaf base.

8. The method of claim 7, wherein shoot formation is induced by culturing said primary leaf base in a medium comprising a shoot-inducing hormone.
9. The method of claim 8, wherein said shoot-inducing hormone comprises at least one of an auxin, a cytokinin, and a gibberellic acid.
10. The method of claim 9, wherein said auxin is selected from the group consisting of IAA, NAA, and IBA.
11. The method of claim 9, wherein said cytokinin is selected from the group consisting of benzylaminopurine (BAP), thidiazuron, kinetin, and isopentenyl adenine.
12. The method of claim 7, wherein induction of shoot formation comprises removing one or more of a primary meristem, a secondary meristem, and an axillary meristem attached to a cotyledon.
13. The method of claim 7, further comprising selecting a transformed shoot.
14. The method of claim 13, further comprising regenerating a selected transformed shoot into a soybean plant.
15. The method of claim 1, wherein said soybean seed is a mature seed.
16. The method of claim 1, wherein said soybean seed is an immature seed.
17. The method of claim 1, wherein said soybean seed is a germinated seed.
18. A method for producing a stably transformed soybean plant, comprising:
 - (a) preparing an explant from a soybean seed by:
 - (i) removing a hypocotyl from said soybean seed;
 - (ii) removing one cotyledon along with its adjacent axillary bud, leaving primary leaves attached to a remaining cotyledon; and

- (iii) removing a portion of each primary leaf from said remaining cotyledon, thereby generating a pair of primary leaf bases;
 - (b) co-cultivating said explant with *Agrobacterium* comprising a nucleic acid of interest to be incorporated into a genome of a soybean cell;
 - (c) inducing shoot formation from each primary leaf base;
 - (d) cultivating at least one formed shoot in a medium containing a selection agent;
 - (e) selecting a transformed shoot; and
 - (f) regenerating a selected transformed shoot into a soybean plant.
19. A transgenic soybean plant regenerated from soybean cells or tissue transformed according to the method of claim 1.
20. A transgenic seed produced by the transgenic plant of claim 19.
21. A transgenic soybean plant regenerated from soybean cells or tissue transformed according to the method of claim 18.
22. A transgenic seed produced by the transgenic plant of claim 21.